

# Adaptation of vegetable system to urban areas in Meknés, Yaoundé and Hanoi

Hubert de Bon<sup>1</sup>, Laurent Parrot<sup>1</sup>, Joel Sotamenou<sup>2</sup>, Patrick Dugué<sup>3</sup>

<sup>1</sup> UR HortSys - CIRAD - Montpellier - France

<sup>2</sup> IRAD - Yaoundé- Cameroun

<sup>3</sup> UMR Innovation - CIRAD - Montpellier - France

---

## Introduction

The vegetable production is a large part of the urban and peri-urban (UPU) agriculture system. Some specificities could be identified from these UPU vegetable cropping systems : short cycles, perishable high value, crops, with intensive production techniques in terms of manpower and inputs. This paper stresses the adaptations made by the UPU growers to look for sources of inputs and an efficient use of them. Focus will be put on the fertilizer nitrogen. Nitrogen is coming from different sources: chemical fertilizer, organic matter, compost, manures and city wastes.

## Methods

Three cases are analyzed: the nitrogen balance in vegetable cropping systems in and around Meknes in relation with the sources of nitrogen, use of organic matter in Yaoundé peri-urban agricultural farms and management of city solid wastes, organic matter in vegetable farm in Hanoi.

## Results

There is a broad range of agricultural practices concerning the organic matter and management of nitrogen fertilization between

the cities but also within the cities in relation with different factors as the location, the type of farming system and the distance between the farm and the organic matter sources.

## Conclusions

Some suggestions are made on a more sustainable management of nitrogen in UPU agriculture.

## References

- de Bon H, Fleury A, To Thi Thu Ha. 2010. Using organic wastes as a source of nutrients, the need of raising awareness. Urban Agriculture magazine, n°23, 2010, 34 et 38.
- Blanchard M, Vayssières J, Dugue P, Vall E. 2013. Local technical knowledge and efficiency of organic fertilizer production in South Mali : diversity of practices. Agroecology and sustainable food systems, 37, 6, 672-699.
- Parrot L., Sotamenou J., Dia Kamgnia B., Nantchouang A. 2009. Determinants of domestic waste input use in urban agriculture lowland systems in Africa: The case of Yaoundé in Cameroon. Habitat international

---

**Keywords:** nitrogen, urban and peri-urban agriculture, vegetables, organic wastes

---

**Presenting author:** Dr Hubert de Bon, [hubert.de\\_bon@cirad.fr](mailto:hubert.de_bon@cirad.fr)